

ABSTRACT

A method of smoothing fundamental frequency discontinuities at boundaries of concatenated speech segments includes determining, for each speech segment, a beginning fundamental frequency value and an ending fundamental frequency value. The method further includes adjusting the fundamental frequency contour of each of the speech segments according to a linear function calculated for each particular speech segment, and dependent on the beginning and ending fundamental frequency values of the corresponding speech segment. The method calculates the linear function for each speech segment according to a coupled spring model with three springs for each segment. A first spring constant, associated with the first spring and the second spring, is proportional to a duration of voicing in the associated speech segment. A second spring constant, associated with the third spring, models a non-linear restoring force that resists a change in slope of the segment fundamental frequency contour.